

What is claimed is:

1. A method for correcting for an echo signal component in a telecommunications device, comprising the steps of:
 - sampling a transmitted signal across a sampling resistor;
 - subtracting the sampled transmitted signal from a received line signal to obtain a reconstructed received signal;
 - sampling the transmitted signal across a first RC network echo compensation circuit to obtain a first echo compensation signal; and
 - subtracting the first echo compensation signal from the received line signal to compensate the reconstructed received signal.
2. The method of claim 1, further comprising the steps of:
 - sampling the transmitted signal across a second RC network echo compensation circuit to obtain a second echo compensation signal; and
 - subtracting the second echo compensation signal from the received line signal to compensate the reconstructed received signal.
3. The method of claim 1, further comprising the steps of:
 - sampling a second transmitted signal across a second sampling resistor;
 - subtracting the second sampled transmitted signal from a second received line signal to obtain a second reconstructed received signal;
 - sampling the second transmitted signal across a second RC network echo compensation

6 circuit to obtain a second echo compensation signal; and

7 subtracting the second echo compensation signal from the second received line signal to
8 compensate the second reconstructed received signal.

1 4. The method of claim 3, further comprising the steps of:

2 sampling the transmitted signal across a third RC network echo compensation circuit to
3 obtain a third echo compensation signal;

4 subtracting the third echo compensation signal from the second received line signal to
5 compensate the second reconstructed received signal;

6 sampling the second transmitted signal across a fourth RC network echo compensation circuit
7 to obtain a fourth echo compensation signal; and

8 subtracting the fourth echo compensation signal from the received line signal to compensate
9 the reconstructed received signal.

1 5. An apparatus for compensating for echo signal in a telecommunications device comprising:

2 a transmitter having an output;

3 a receiver having an input;

4 a line transformer coupled to the transmitter output and the receiver input; and

5 an echo compensation circuit including a first circuit branch coupled to the transmitter output
6 and the receiver input and a second circuit branch coupled to the transmitter output and the receiver
7 input.

1 6. The apparatus according to claim 5, wherein:

2 the first circuit branch further comprises a first resistor and a first capacitor connected in
3 series; and

4 the second circuit branch further comprises a second resistor and a second capacitor
5 connected in series.

1 7. The apparatus according to claim 6, further comprising

2 a second transmitter having an output;

3 a second receiver having an input; and

4 a second echo compensation circuit including a third circuit branch coupled to the second
5 transmitter output and the second receiver input and a fourth circuit branch coupled to the transmitter
6 output,

7 wherein the line transformer is coupled to the second transmitter output and the second
8 receiver input; and

9 wherein the second circuit branch is coupled to the transmitter output and the second receiver
10 input.

1 8. The apparatus according to claim 7, wherein:

2 the third circuit branch further comprises a third resistor and a third capacitor connected in
3 series; and

4 the fourth circuit branch further comprises a fourth resistor and a fourth capacitor connected
5 in series.

9. An apparatus for compensating for echo signal in a telecommunications device comprising:

- a first differential transmitter having an output terminal coupled to a first transmitted signal node;
- a second differential transmitter having an output terminal coupled to a second transmitted signal node;
- a first current limiting resistor having a first terminal coupled to the first transmitted signal node and a second terminal coupled to a first line transformer node;
- a second current limiting resistor having a first terminal coupled to the second transmitted signal node and a second terminal coupled to a second line transformer node;
- a first sampling resistor having a first terminal coupled to the first line transformer node and a second terminal connected to a first received signal node;
- a second sampling resistor having a first terminal coupled to the second line transformer node and a second terminal connected to a second received signal node;
- a first compensation circuit having a first terminal coupled to the first transmitted signal node and a second terminal coupled to the first received signal node;
- a second compensation circuit having a first terminal coupled to the first transmitted signal node and a second terminal coupled to the second received signal node;
- a third compensation circuit having a first terminal coupled to the second transmitted signal node and a second terminal coupled to the second received signal node; and
- a fourth compensation circuit having a first terminal coupled to the second transmitted signal node and a second terminal coupled to the first received signal node.

1 10. An apparatus for compensating for echo signal in a telecommunications device according to
2 claim 9 wherein,
3 the first compensation circuit further comprises a first compensation resistor and a first
4 compensation capacitor connected in series;
5 the second compensation circuit further comprises a second compensation resistor and a
6 second compensation capacitor connected in series;
7 the third compensation circuit further comprises a third compensation resistor and a third
8 compensation capacitor connected in series; and
9 the fourth compensation circuit further comprises a fourth compensation resistor and a fourth
10 compensation capacitor connected in series.

1 11. An apparatus for compensating for echo signal in a telecommunications device according to
2 claim 9 wherein,
3 the first terminal of the first sampling resistor is coupled to the first transmitted signal node;
4 and
5 the first terminal of the second sampling resistor is coupled to the second transmitted signal
6 node.